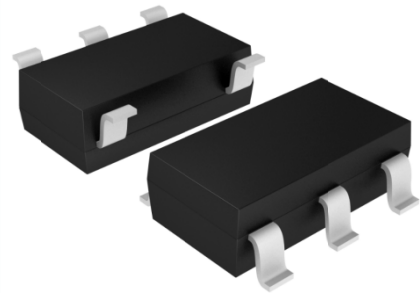


Thyristor Surge Suppressor
Features

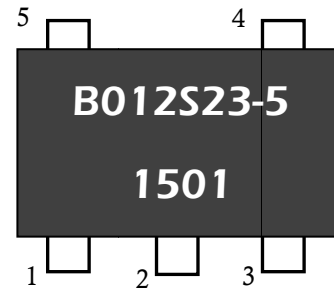
- Small package (SOT23-5)
- Low Capacitance (<10pF)
- Excellent capability of absorbing transient surge
- Weight:15mg
- Non degenerative
- Bi-directional
-

Exterior


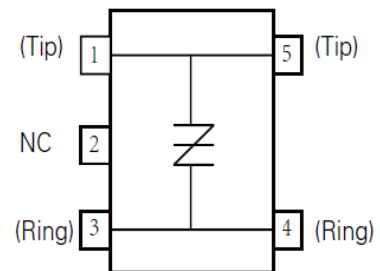
SOT23-5

Application Information

- xDSL

Package (top view)

Agency Approvals

Icon	Description
RoHS	Compliance with 2011/65/EU

Schematic Symbol

Part Number and Electrical Parameter

Part Number	I _{DRM} @V _{DRM}		V _S ^① @ I _S		V _T @ I _T		I _H	Co ^②
	μA	V	V	mA	V	A	mA	pF
	MAX		MAX		MAX		MIN	MAX
BS0120S23-5	5	12	20	500	4	2.2	20	10

Absolute maximum ratings measured at T_A= 25°C RH = 45%-75% (unless otherwise noted).

① V_S is measured at 100KV/S

② Off-state Capacitance is measured at V_{DC}=2V, V_{RMS}=1V, f=1MHz

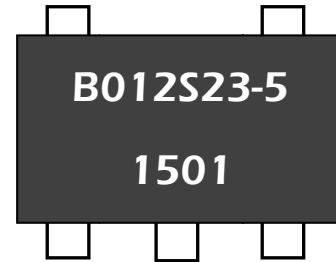
Thyristor Surge Suppressor

Part Numbering System

BS 0120 S23-5
(1) (2) (3)

- (1) Bencent Semiconductor Surge Arrester
- (2) Off-state Voltage, e.g. 0120=12 × 10⁰=12V
- (3) Package: SOT23-5

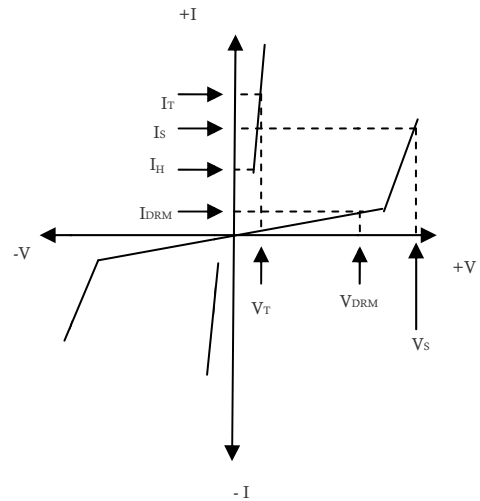
Mark



B012S23-5: Part Number
1501: January, 2015

V-I Curve

Parameters	Definition
V _{DRM}	Peak Off-state Voltage
I _{DRM}	Off-state Current
V _S	Switching Voltage
I _S	Switching Current
I _H	Holding Current
V _T	On-state Voltage
I _T	On-state Current
C _o	Off-state Capacitance



Surge Ratings

Current Waveform	8/20μs
Voltage Waveform	1.2/50μs
I _{pp}	50A

- Peak pulse current rating (I_{pp}) is repetitive and guaranteed for the life of the product;
- Bencent only makes the test for 8/20μs @50A(1.2/50μs 2Ω100V).

Thermal Considerations

Symbol	Parameter	Value	Unit
T _J	Operating Junction Temperature Range	-40 to +125	°C
T _S	Storage Temperature Range	-60 to +125	°C

Physical Characteristics

Lead Material	Copper Alloy
Body Material	UL recognized epoxy meeting flammability classification 94V-0
Terminal Finish	100% Matte-Tin Plated

Thyristor Surge Suppressor

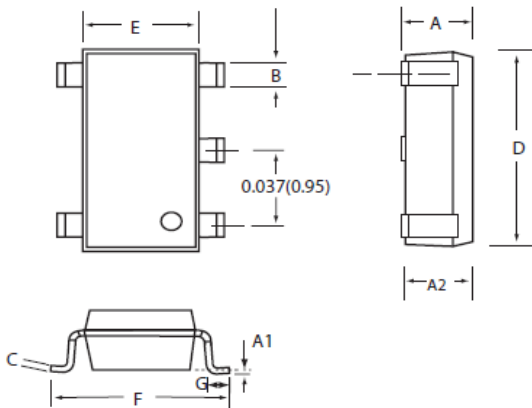
Version: A0 2015-7-12

Environmental Characteristics

Testing Items	Technical Standards
High Temperature Reverse Bias Test	Temperature: $150\pm 3^{\circ}\text{C}$, Bias= $80\%V_{\text{DRM}}$ Time:168H
High Temperature Life Test	Temperature: 150°C Time:168H
High-low Temperature Cycle Test	Temperature:From -40°C to 125°C Dwell time: 30min, 10-100 cycles
High Temperature &High Humidity Test	Temperature: 85°C Humidity:60% Test time:168H
Pressure Cooker Test	Temperature: 121°C , 2atm. Humidity:100% Test time: 24H to 168H
Resistance of Soldering Heat	Temperature: $260\pm 5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

Note:The above testing items can be specified by customers by contacting Bencent service

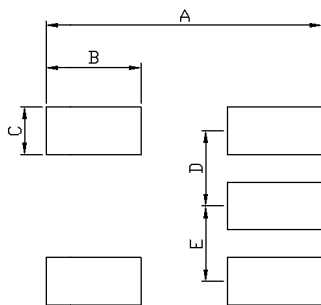
Product Dimensions



SOT23-5

REF.	mm	inch
A	0.90-1.45	0.035-0.057
B	0.35-0.50	0.014-0.020
C	0.09-0.20	0.004-0.008
D	2.80-3.20	0.110-0.126
E	1.50-1.75	0.059-0.069
F	2.60-3.00	0.102-0.118
G	0.10-0.60	0.004-0.024
A1	0.00-0.10	0.000-0.004
A2	0.90-1.30	0.035-0.051

Recommended Soldering Pad



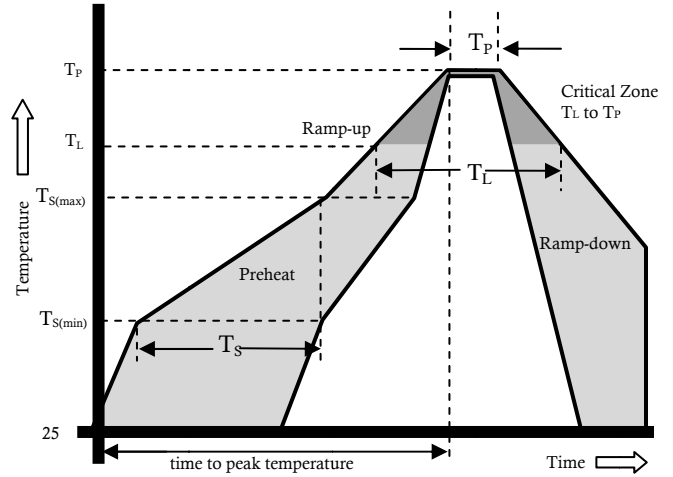
REF	mm	inch
A	3.50	0.138
B	1.20	0.047
C	0.60	0.024
D	0.95	0.037
E	0.95	0.037

Thyristor Surge Suppressor

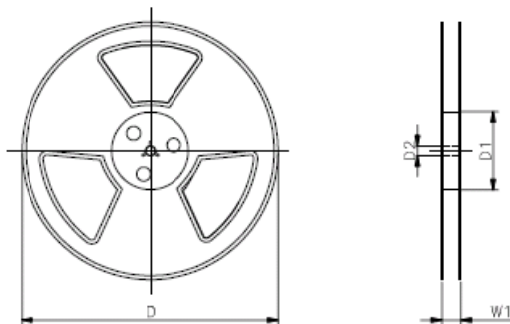
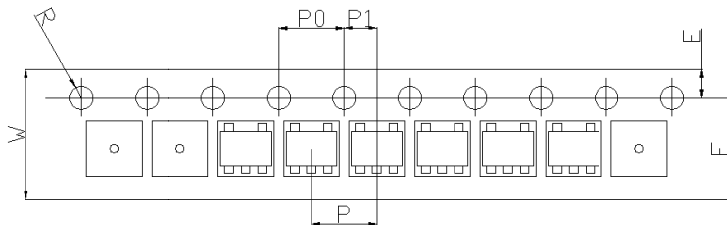
Version: A0 2015-7-12

Reflow Profile

Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time(Min to Max)	60 – 180 secs.
Average ramp up rate(Liquidus Temp(T_L) to peak)		3°C/sec. Max.
Ts(max) to T_L - Ramp-up Rate		3°C/sec. Max.
Reflow	- Temperature (T_L) (Liquidus)	+217°C
	- Temperature (T_L)	60 – 150 secs.
Peak Temp (T_P)		+(260+0/-5)°C
Time within 5°C of actual Peak Temp (T_P)		30secs.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to peak Temp (T_P)		8 min. Max.
Do not exceed		+260°C



Package Reel Information



REF	mm	inch
R	0.75+/-0.05	0.029+/-0.002
D	178.0	7.0
D1	60+/-3	2.362+/-0.118
D2	13+/-0.3	0.512+/-0.012
E	1.75+/-0.2	0.069+/-0.008
F	6.25+/-0.2	0.246+/-0.008
P	4.0+/-0.2	0.157+/-0.008
P0	4.0+/-0.2	0.157+/-0.008
P1	2.0+/-0.2	0.079+/-0.008
W	8.0+/-0.2	0.315+/-0.008
W1	8.4+/-0.5	0.331+/-0.020

Outline	Reel (pcs)	Per Carton (pcs)	Reel Diameters (mm)	Carton Size(mm)		
				L	W	H
Taping	3000	90,000	177	390	370	220